

G 1203

(Pages : 2)

Reg. No.....

Name.....

**B.TECH. DEGREE EXAMINATION, MAY 2015**

**Sixth Semester**

Branch : Electrical and Electronics Engineering

EE 010 602—INDUCTION MACHINES (EE)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]



Time : Three Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.*

*Each question carries 3 marks.*

1. Draw the phasor diagram of three-phase induction motor.
2. What is necessity of speed control in Induction motor ?
3. What are the different methods of starting for induction motor ?
4. Give the application of repulsion motor.
5. Briefly discuss the characteristics of stepper motor.

(5 × 3 = 15 marks)

**Part B**

*Answer all questions.*

*Each question carries 5 marks.*

6. Explain the operating characteristics from circle diagram for induction motor.
7. Explain in detail about starting of slip ring motors.
8. Explain about revolving field theory.
9. Give the expression for induced e.m.f. in a commutator winding.
10. Discuss in detail about application of BLDC motor.

(5 × 5 = 25 marks)

Turn over

## Part C

Answer all questions.  
Each question carries 12 marks.

11. Explain the detailed construction and working principle of Three-phase induction motor and its types.

Or

12. A 400 V, 40 h.p., 50 Hz, three-phase induction motor gave the following test data :

No Load test : 400 V, 20A, 1200 W.

Blocked rotor test : 100 V, 45 A, 2750 W.

Stator d.c. resistance per phase is  $0.01 \Omega$ .

The ratio of a.c. to d.c. resistance is 1.5. The friction and windage loss is 300 W. Calculate the circuit elements of approximate equivalent circuit of the motor.

13. Explain the different types speed control technique for induction machine.

Or

14. A 3-phase squirrel cage induction motor takes a starting current of 6 times the full-load current. Find the starting torque as a percentage of full-load torque if the motor started (a) Direct on line ; (b) through a star- delta starter ; full-load slip of the motor being 4 percent.

15. Explain the detailed construction and working principle of synchronous induction motor.

Or

16. A 50 Hz split phase induction motor has a resistance  $5 \Omega$  and an inductive reactance of  $20 \Omega$  in both main and auxiliary winding. Determine the value of resistance and capacitance to be added in series with auxiliary winding to send the same current in each winding with the phase difference of 90 degree.

17. Discuss in detail about Reluctance and Hysteresis Motor.

Or

18. Explain in detail about single-phase series motor and commutator motor.

19. Explain the construction and working principle of BLDC motor.

Or

20. Discuss the detailed construction, working principle and application of switched reluctance motor.

(5 × 12 = 60 marks)

